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Alonzo L. Plough, Ph.D., MPH, *Director*

Clinical Guidance on the Identification and Evaluation of Possible SARS-CoV Disease Among Persons Presenting with Community-Acquired Illness in the Absence of SARS-CoV Disease Anywhere in the World – 4 December 2003

The following information is excerpted from and based on updated CDC guidance from December 3, 2003. Please review the complete CDC documents at http://www.cdc.gov/ncidod/sars/

Identification of Potential Cases of SARS-CoV Disease

The diagnosis of SARS-CoV disease and the implementation of control measures should be based on the risk of exposure. In the absence of any documented cases of SARS-CoV disease worldwide, the overall likelihood that a given patient being evaluated for fever or respiratory illness has SARS-CoV disease will be exceedingly low unless there are both typical clinical findings and some accompanying epidemiologic evidence that raises the suspicion of exposure to SARS-CoV. Therefore, one approach in this setting would be to consider the diagnosis only for patients who require hospitalization for unexplained pneumonia and who have an epidemiologic history that raises the suspicion of exposure, such as recent travel to a previously SARS-affected area (or close contact with an ill person with such a travel history), employment as a healthcare worker with direct patient contact or as a worker in a laboratory that contains live SARS-CoV, or an epidemiologic link to a cluster of cases of unexplained pneumonia. Once SARS-CoV activity has been documented anywhere in the world, the positive predictive value of even early clinical symptoms (e.g., fever or respiratory symptoms in the absence of pneumonia), while still low, may be improved if used in combination with an epidemiologic link to settings in which SARS-CoV has been documented.

In that context, the guidance that follows should be considered in the evaluation and management of patients who present from the community with febrile respiratory illnesses. **For more detailed guidance on infection control, see Public Health Guidance for Community-Level Preparedness and Response to Severe Acute Respiratory Syndrome (SARS) [www.cdc.gov/ncidod/sars/sarsprepplan.htm].**

Key Concepts

- The vast majority of patients with SARS-CoV disease 1) have a clear history of exposure either to a SARS patient(s) or to a setting in which SARS-CoV transmission is occurring, and 2) develop pneumonia.
- Laboratory tests are can be helpful but do not reliably detect infection early in the illness.
- CDC recommends the following approach for the evaluation of possible SARS-CoV disease among persons presenting with community-acquired illness. As part of the work-up, in addition to identification of suggestive clinical features, clinicians should routinely incorporate into the medical history questions that may provide epidemiologic clues to identify patients with SARS-CoV disease.
- In the absence of SARS-CoV transmission in the world, evaluation and management for possible SARS-CoV disease should be considered only for adults, unless special circumstances make the clinician and health department consider a child to be of potentially high risk for having SARS-CoV disease.

Diagnosis of SARS-CoV Disease

In the absence of SARS-CoV transmission anywhere in the world, the diagnosis of SARS-CoV disease should be considered only in patients who require hospitalization for radiographically confirmed pneumonia and who have an epidemiologic history that raises the suspicion of SARS-CoV disease.

The suspicion for SARS-CoV disease is raised if, within 10 days of symptom onset, the patient:

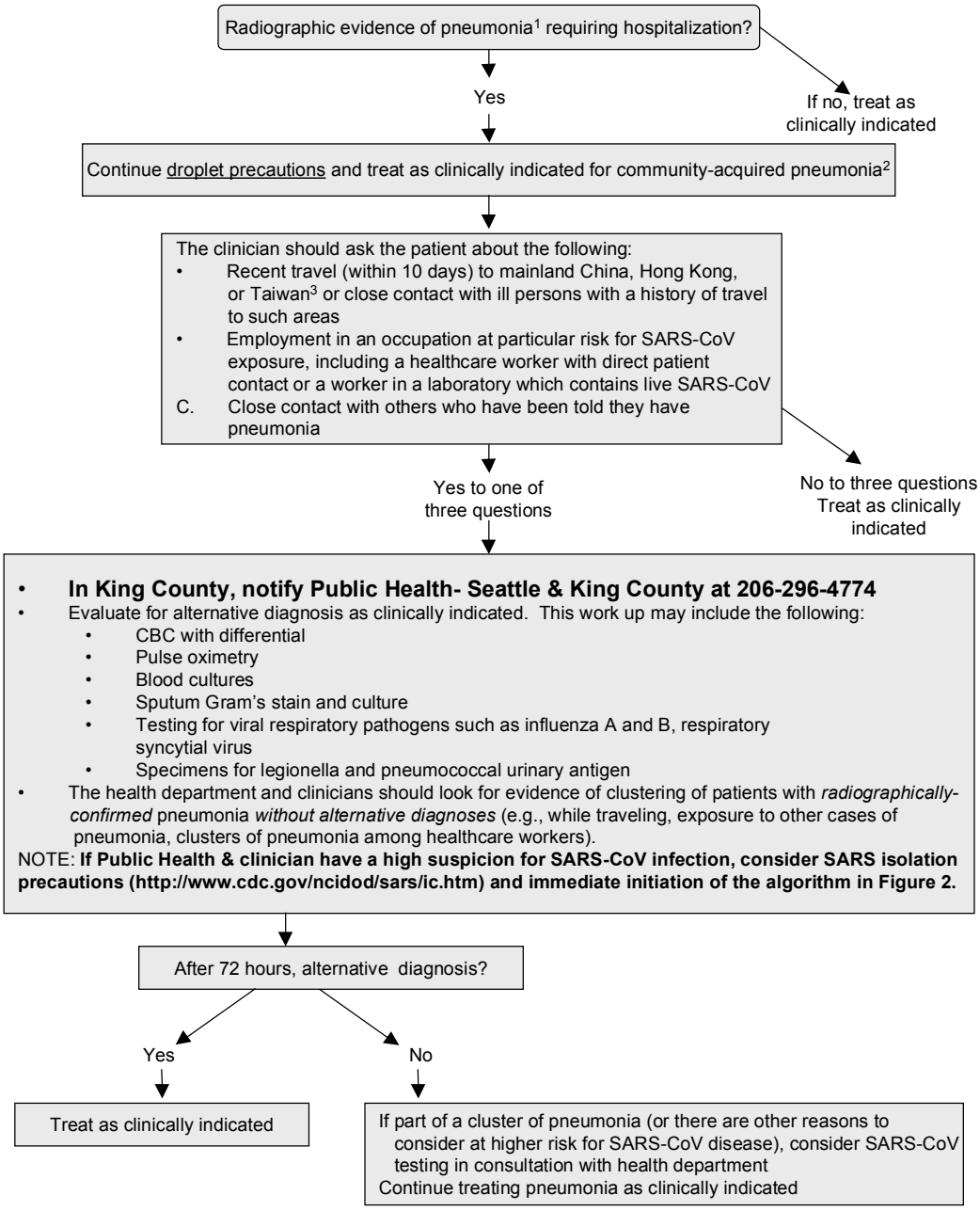
- **Has a history of recent travel to mainland China, Hong Kong, or Taiwan (see Figure 1, footnote 3) or close contact with ill persons with a history of recent travel to such areas, or**
- **Is employed in an occupation at particular risk for SARS-CoV exposure, including a healthcare worker with direct patient contact or a worker in a laboratory that contains live SARS-CoV, or**
- **Is part of a cluster of cases of atypical pneumonia without an alternative diagnosis**

Persons with such a clinical and exposure history should be evaluated according to the algorithm in Figure 1.

In the absence of SARS activity worldwide, patients hospitalized for radiographically confirmed pneumonia and answering yes to one of the above screening questions are managed with droplet precautions. SARS isolation precautions should be considered in cases where the examining physician and Public Health have a high suspicion for SARS, for example:

- **The patient is part of a cluster of two or more healthcare workers who 1) are hospitalized for CXR-confirmed pneumonia or ARDS 2) had direct patient contact, 3) have worked in the same facility, and 4) had illness onset within same 10-day period**
  OR
- **The patient has 1) no alternate diagnosis that could explain the illness, 2) recently returned from a previously SARS affected area, and 3) either had close contact with someone hospitalized for a respiratory infection or visited a hospital while in the previously affected area and within 10 days of their illness onset.**

Figure 1: Algorithm for evaluation and management of patients hospitalized with radiographic evidence of pneumonia <u>in the absence of SARS-CoV disease activity worldwide</u>

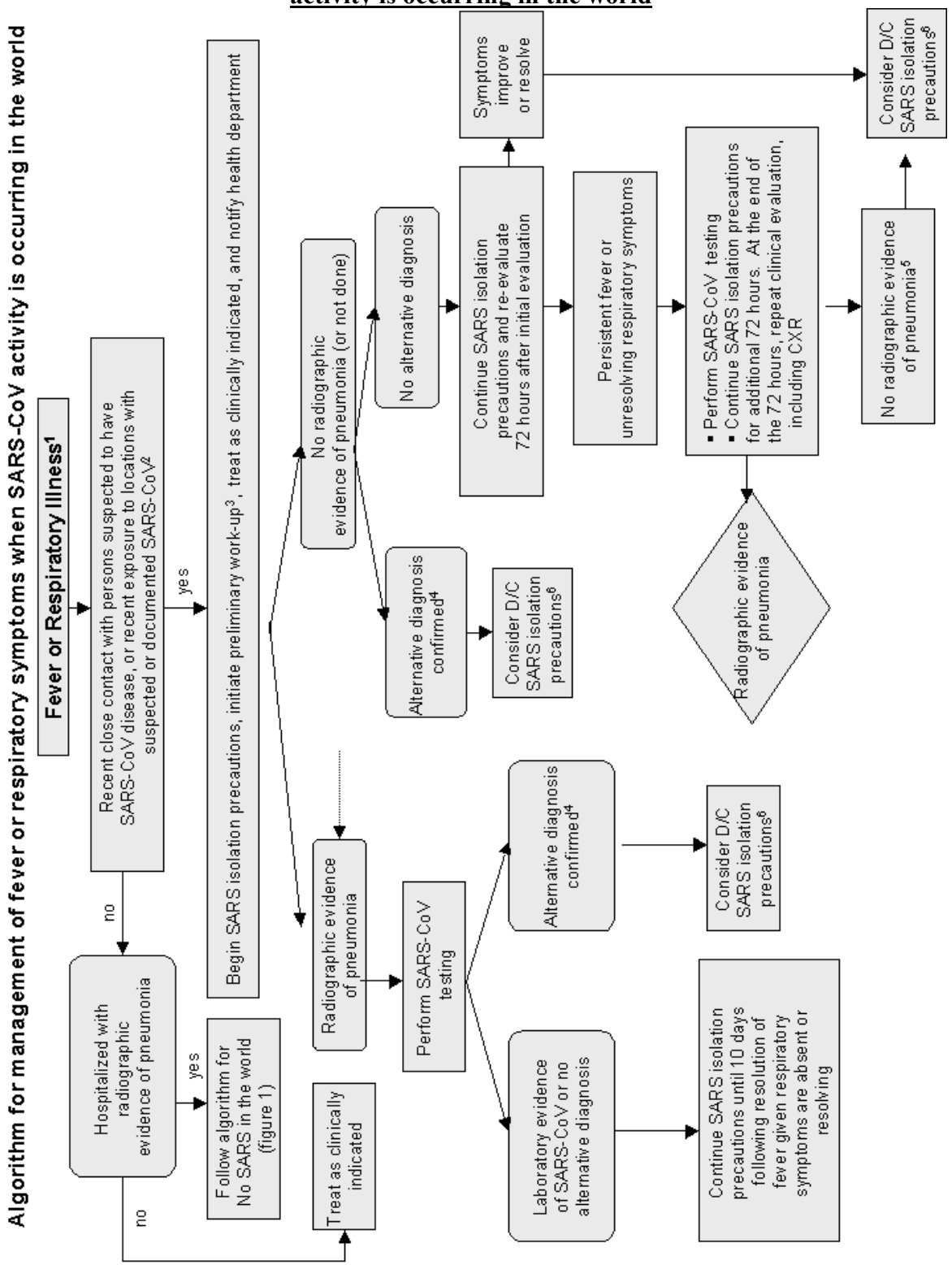


[1] Or Acute Respiratory Distress Syndrome (ARDS) of unknown etiology

[2] Guidance for the management of community-acquired pneumonia is available from the Infectious Diseases Society of America (IDSA) and can be at www.journals.uchicago.edu/IDSA/guidelines/.

[3] The 2003 SARS-CoV outbreak likely originated in mainland China, and neighboring areas such as Taiwan and Hong Kong are thought to be at higher risk due to the high volume of travelers from mainland China. Although less likely, SARS-CoV may also reappear from other previously affected areas. Therefore, clinicians should obtain a complete travel history. If clinicians have concerns about the possibility of SARS-CoV disease in a patient with a history of travel to other previously affected areas (e.g., while traveling abroad, had close contact with another person with pneumonia of unknown etiology or spent time in a hospital in which patients with acute respiratory disease were treated), they should contact the health department.

Figure 2: Algorithm for management of fever or respiratory symptoms <u>when SARS-CoV activity is occurring in the world</u>



FOOTNOTES FOR FIGURE 2:

[1] Clinical description of SARS-CoV disease and approach to treatment: Clinical judgment should be used to determine when symptoms trigger initiation of the algorithm in Figure 2. The earliest symptoms of SARS-CoV disease usually include fever, chills, rigors, myalgia, and headache. In some patients, myalgia and headache may precede the onset of fever by 12-24 hours. Diarrhea may also be an early manifestation. Respiratory symptoms often do not appear until 2-7 days after the onset of illness, and most often include shortness of breath and/or dry cough. Although not diagnostic, the following laboratory abnormalities have been seen in some patients with laboratory-confirmed SARS-CoV disease:

- Lymphopenia with normal or low white blood cell count
- Elevated hepatic transaminases
- Elevated creatine phosphokinase
- Elevated lactate dehydrogenase
- Elevated C-reactive protein
- Prolonged activated partial thromboplastin time

As of 1 December 2003, no specific treatment recommendations can be made for management of SARS-CoV disease. Empiric therapy for community-acquired pneumonia should include treatment for organisms associated with any community-acquired pneumonia of unclear etiology, including agents with activity against both typical and atypical respiratory pathogens. Treatment choices may be influenced by both the severity of and the circumstances surrounding the illness. Infectious disease consultation is recommended. The Infectious Diseases Society of America has guidelines for the management of community-acquired pneumonia (www.journals.uchicago.edu/IDSA/guidelines/).

[2] **Exposure history for SARS-CoV, once SARS-CoV transmission is documented in the world:**
In settings of no or limited local secondary transmission of SARS-CoV, patients are considered exposed to SARS if, within 10 days of symptom onset, the patient has:

- Close contact with someone suspected of having SARS-CoV disease, OR
- A history of foreign travel (or close contact with an ill person with a history of travel) to a location with documented or suspected SARS-CoV, OR
- Exposure to a domestic location with documented or suspected SARS-CoV (including a laboratory that contains live SARS-CoV), or close contact with an ill person with such an exposure history.

NOTE: Information on foreign and domestic locations where SARS is suspected or documented will be provided if SARS recurs.

In settings with more extensive transmission, all patients with fever or respiratory symptoms should be evaluated for possible SARS-CoV disease, since the ability to determine epidemiologic links will be lost. For up-to-date information on where recent SARS-CoV transmission is suspected or documented, see the CDC and WHO websites: www.cdc.gov/ncidod/sars and www.who.int.

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[3] **Clinical work-up:** Clinicians should work up patients as clinically indicated. Depending on symptoms and exposure history, initial diagnostic testing for patients with suspected SARS-CoV disease may include:

- Complete blood count (CBC) with differential
- Chest radiograph
- Pulse oximetry
- Blood cultures
- Sputum Gram's stain and culture
- Testing for viral respiratory pathogens, notably influenza A and B and respiratory syncytial virus
- Legionella and pneumococcal urinary antigen testing if radiographic evidence of pneumonia (adults only)

- An acute serum sample and other available clinical specimens (respiratory, blood, and stool) should be saved for additional testing until a specific diagnosis is made.

- SARS-CoV testing may be considered as part of the initial work-up if there is a high level of suspicion for SARS-CoV disease based on exposure history. For additional details on specialized laboratory testing options available through the health department and the Laboratory Response Network (LRN), see CDC's SARS website (www.cdc.gov/ncidod/sars/).

[4] **Alternative diagnosis:**
An alternative diagnosis should be based only on laboratory tests with high positive-predictive value (e.g., blood culture, viral culture, Legionella urinary antigen, pleural fluid culture, transthoracic aspirate). In some settings, PCR testing for bacterial and viral pathogens can also be used to help establish alternative diagnoses. The presence of an alternative diagnosis does not necessarily rule out co-infection with SARS-CoV.

[5] **Radiographic testing:**
Chest CT may show evidence of an infiltrate before a chest radiograph (CXR). Therefore, a chest CT should be considered in patients with a strong epidemiologic link to a known case of SARS-CoV disease and a negative CXR 6 days after onset of symptoms. Alternatively, the patient should remain in SARS isolation, and the CXR should be repeated on day 9 after symptom onset.

[6] **Discontinuation of SARS isolation precautions:**
SARS isolation precautions should be discontinued only after consultation with Public Health (at 206-296-4774) and the evaluating clinician. Factors that might be considered include the strength of the epidemiologic exposure to SARS-CoV, the nature of contact with others in the residential or work setting, the strength of evidence for an alternative diagnosis, and evidence for clustering of pneumonia among close contacts. Isolation precautions should be discontinued on the basis of an alternative diagnosis only when the following criteria are met:

- Absence of strong epidemiologic link to known cases of SARS-CoV disease
- Alternative diagnosis confirmed using a test with a high positive-predictive value
- Clinical manifestations entirely explained by the alternative diagnosis
- No evidence of clustering of pneumonia cases among close contacts (unless >1 case in the cluster is confirmed to have the same alternative diagnosis)
- All cases of presumed SARS-CoV disease identified in the surrounding community can be epidemiologically linked to known cases or locations in which transmission is known to have occurred.